

introducing the sheet into a second heating zone after the sheet has passed through the rotating impregnation device.

25. (New) The process according to Claim 20, further comprising the step of winding the composite tape in a form of a reel.

26. (New) The process according to Claim 20, wherein said step of cooling the tape sets the dimensional and aesthetic characteristics of the composite tape.

REMARKS

Favorable reconsideration of this application as presently amended is respectfully requested.

Claims 1-6 and 20-26 are presently active in this case, Claims 1, 3, and 6 having been amended, Claims 7-19 having been canceled, and Claim 20-26 having been added by way of the present.

In the outstanding Official Action, Claims 1-6 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1, 3, and 6 have been amended to address the indefiniteness rejections raised in the Official Action. Accordingly, the Applicants request the withdrawal of the indefiniteness rejections.

Claims 1-6 were rejected under 35 U.S.C. 103(a) as being unpatentable over Loubinoux et al. (U.S. Patent No. 6,294,036) in view of Angell, Jr. et al. (U.S. Patent No. 5,037,284). For the reasons discussed below, the Applicant traverses the obviousness rejection.

The basic requirements for establishing a *prima facie* case of obviousness as set forth in MPEP 2143 include (1) there must be some suggestion or motivation, either in the

references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings, (2) there must be a reasonable expectation of success, and (3) the reference (or references when combined) must teach or suggest all of the claim limitations.

The Applicant submits that a *prima facie* case of obviousness has not been established in the present case because the references do not teach or suggest all of the claim limitations. For example, the cited references do not teach or suggest introducing the sheet into a shaping and centring device, while maintaining the sheet at a temperature at which the thermoplastic is malleable, so as to obtain a tape formed by bringing the yarns together so as to be touching, thereby creating transverse continuity, as recited in Claim 1 of the present application. Accordingly, the Applicants request the withdrawal of the obviousness rejection.

The Loubinoux et al. reference describes a method and device for making composite sheets. The Loubinoux et al. reference is directed to a process that manufactures a composite sheet from numerous plies of yarn. Each individual ply is a sheet of many yarns. (See column 2, lines 10-63.) To the contrary, the present invention is directed to a unique process of manufacturing a composite tape with yarns, which is distinguishable from the method of making composite sheets from numerous plies of yarn described in the Loubinoux et al. reference.

Furthermore, the Official Action cites to column 2, lines 63-66, and column 3, line 66, through column 4, line 28, for the teaching of a shaping and centering device. The cited portion of the Loubinoux et al. reference describes a heated rotating bar that is preferably cylindrical or approximately cylindrical. (Column 4, lines 34-36.) The Applicants submit that the cylindrical heating and rotating bar cannot center the sheet in the manner recited in Claim 1 of the present application. By way of illustration and not limitation, the present

application describes an embodiment that includes a shaping and centering device (100) that includes a cylindrical lower roller (101) and a hyperboloidal upper roller (102). The device (100) concentrates the sheet around the central axis of the line in order to reduce its width, and re-centers the sheet with respect to the central axis of the manufacturing line in order to suitably guide the tape downstream towards the calender (110). The Loubinoux et al. reference does not describe or suggest a structure that centers the sheet in the manner recited in Claim 1 of the present application.

The Official Action states that “the elimination of the corrugations indicate that the touching yarns were moved into a more touching state....” The Applicants note that the elimination of corrugations does not imply or necessitate the centering of the sheet.

The Angell, Jr. et al. reference is cited for the teaching of an impregnation station. The Angell, Jr. et al. reference does not supplement the deficiencies in the teachings of the Loubinoux et al. reference discussed above.

Accordingly, the Applicants submit that Claim 1 is distinguishable over the cited references.

Claims 2-6 are considered allowable for the reasons advanced for Claim 1 from which they depend. These claims are further considered allowable as they recite other features of the invention that are neither disclosed, taught, nor suggested by the applied references when those features are considered within the context of Claim 1.

Accordingly, the Applicants respectfully request the withdrawal of the obviousness rejection.

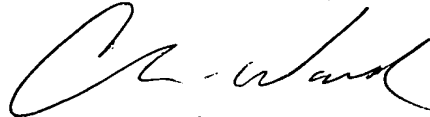
Newly added Claims 20-26 are considered allowable as they recite features of the invention that are neither disclosed, taught, nor suggested by the references of record.

Consequently, in view of the above discussion, it is respectfully submitted that the

present application is in condition for formal allowance and an early and favorable reconsideration of this application is therefore requested.

Respectfully submitted,

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IN THE CLAIMS

1. (Twice Amended) Process for manufacturing a composite tape based on reinforcing fibres and on a thermoplastic organic material, consisting in bringing together and in consolidating a multiplicity of continuous yarns, characterized in that:

yarns based on thermoplastic and reinforcing fibres [and] are entrained and brought together in a parallel manner in the form of a sheet;

said sheet is made to enter a zone in which [it] the sheet is heated to a temperature reaching at least the melting point of the thermoplastic without reaching the softening temperature of the reinforcing fibres;

the sheet is made to pass through a rotating impregnation device, while maintaining [its temperature] the sheet at a temperature at which the thermoplastic is malleable, in order to distribute the molten thermoplastic uniformly and guarantee that the reinforcing fibres are completely impregnated by the latter;

the sheet is introduced into a shaping and centring device, while maintaining [its temperature] the sheet at a temperature at which the thermoplastic is malleable, so as to obtain a tape formed by bringing the yarns together so as to be touching, thereby creating transverse continuity;

the tape is cooled in order to consolidate the yarns by freezing the thermoplastic and [its] dimensional characteristics of the tape and [its] appearance of the tape are set in order to

deliver said composite tape.

3. (Twice Amended) Process according to Claim 1, [characterized in that it consists in] further comprising unreeling, from wound packages, a continuous yarn of reinforcing filaments and, while the yarns are being brought together in the form of a sheet, in regulating the tension in the yarns.

6. (Twice Amended) Process according to Claim 1, characterized in that, at the end of [the] a manufacturing line, the tape is wound up in the form of a reel for storing [it] the tape.

Claims 7-19 (Cancel)

Claims 20-26 (New)